kable Accident uſually happening at thoſe Seaſons.) Of theſe different Seaſons at *Chepſtow-bridge* from thoſe of *Rumney-Marſh*, I gave you my remarks in a Letter of mine to you in *March* following. And the like differences, I ſuppoſe, will be obſervable on other Coaſts, according as their poſitions be advantageous or diſadvantageous to the one or the other of the two Cauſes, on which this *Phænomenon* depends. But ſince it is not yet (it ſeems) agreed, Whether ſuch an *Annual* Phænomenon do happen; or, if ſo, not at that time; (ſo that, for ought yet appears, it may be at the Seaſons I deſign, that is, between the Winter-Solſtice and the two Æquinoxes on either ſide of it; though, on ſeveral Coaſts, ſeverally remote,) I think it beſt to let this part of the *Hypotheſis* ſtand as it is, unrevoked, as that, which, when it ſhall be diſcovered and agreed on, ſtands ready enough to give a rational account of it, and, in the mean time, does no hurt. And in ſuch a Complication of Cauſes ſo abſtruſe, ſcarce any thing but Obſervation will determine, which of the Cauſes, and in what degree, is to be Judged prædominant.

And if to this of the *Sun*'s or *Earth*'s, be added that of the *Obliquity* and *Excentricity* of the *Moon*'s *Orbite* (of which, for the reaſon above-mentioned, I had taken ſo little notice,) it will, if it do no good, at leſt do no hurt. And I the rather think, it may be conſiderable, becauſe the Earth and Moon's Appropinquation and Elongation, doth really alter the Diſtance of the *Common Center* of *Gravity* (of the Earth and Moon) from the Earth (rendring the Earth's *Epicycle* Elliptical;) and much favors what M. *Childrey* obſerves of the Moon in *Perigæo*. And this is the ſum of what I thought proper to return you, upon thoſe Animadverſions, *being*, &c.

An Accompt of ſome Books.

I. *DISSERTATIONES MEDICÆ TRES: 1. De Cauſis fluxûs Menſtrui Mulierum. 2. De Sympathia variarum Corporis partium cum Utero. 3. De Uſu Lactis ad tabidos reficiendos, & de immediato Corporis Alimento. Auth.* Franciſco Bayle, *Doct. Medico.* Toloſæ, 1670. *in* 4°.

THis Ingenious Author to prepare his Reader to a candid reception of theſe Diſcourſes, repreſents in the Preface, how much miſchief and prejudice hath been done to knowledge *both* by

by intemperate and blind Love of Novelty, *and* by a ſullen and ſervile addiction to bare Antiquity; and eſteems him to be truly wiſe, who neither admits Falſities upon the ſole account of being Ancient, nor excludeth Truths becauſe of Novelty, but giveth honor to the Fathers of Sciences, with ſafety to Truth, as *the* thing which the authority both of the Ancients and Moderns ought to ſtoop to. Upon which ground he proceeds, ſometimes diſſenting from *Galen* in theſe Eſſay's alledging, *that* Authors own adviſe and practiſe for ſo doing; and deploring the unhappineſs of the ſtate of Phyſick becauſe of the too great ſervility of adhering to former attainments. Having premiſed this, he doth in the

Firſt Diſſertation examine and reject the opinion of *Galen* and others concerning the Periodicalneſs or Stated returns of that *Flux*; eſteeming, that that Author and his Followers do only diſcourſe of what is obvious in this Argument, and leave that unexplained what is not ſo; as, from what cauſe, by what organs, and why at ſtated times that Evacuation is raiſed and performed. And having ſhew'd, that the common Doctrine concerning this Effect in Women contains nothing, which may be acquieſced in, he proceeds to declare and prove his opinion concerning the ſame, *viz.* That, as in the Earth (the fruitfull womb of all Seeds of Plants,) ſo in all the Wombs of Animals, fit for Conception, there concur chiefly three things: A benigne Heat to cheriſh; a due Fermentation to agitate and dilate; and a due portion of Moiſture, to enter with eaſe into the paſſages open'd by that Fermenting motion. This he maketh out both in Oviparous and Viviparous Animals, and teacheth, that the bloud being agitated and rarified by that Effervеſcence, ſwels and opens the veſſels, and breaks out into a Profluvium; *Dumque hoc fervore dilatatur uterus, aperiuntur viæ inconſpicuæ, quibus ſemen maſculinum interius excipitur, quippe quod non hæret in uteri cavitate (in qua Harvæus & alii illud fruſtra quæſivêre) ſed in ipſius ſubſtantiam imbibitur, ubi fœminei ſeminis permiſtione turgeſcit, & radices agit, quibus delatum per apertos fervore meatus ſuccum nutritium accipit: deinde, ut in Terra ſolent Plantarum ſemina, caulem profert carneum, Placentam ſcil. uterinam, ex qua fructus inſtar erumpit Ovum, cui ex germine, liquamini innatante, adnaſcitur alia planta mox migratura in animal, tandem in hominem, ſi ex humano ſemine fuerit excitata.*

After this, he inquireth into the Cauſe of that Incaleſcence, and its Periodical viciſſitudes; as alſo, why 'tis found in

Mulieribus & Si Aliis, cùm Equæ, Canes, Vaccæ, &c. non niſi ſeroſum quid idque paucum ab illo uteri fervore profundant. The Cauſe of this Fervor he maketh to be a Nitrous Salt collected in the Body. The reaſon of the Periodical returns he aſſigns to be this, that the *Uterus*, like the Earth, having been throughout fermented and dilated by the nitrous particles and the orifices of the *Tubuli*, which paſs into the cavity of the ſame, opened, the attenuated bloud ruſheth into it, *indeque foras effunditur. Ubi verò ſanguis libere fluit, collectum fermentum abſtergit quemadmodum aqua è Terra, quam abluit, Nitrum ejicit. Reſtituto deinde in ſtatum priſtinum Utero idem fermentum colligitur eodem modo quo prius, & nî quid obſtet, ſpatio æquali, pari quantitate congeſtum, & ad ſimilem exaltationem evectum, novam efficit in Utero fermentationem.* And this is to our Author the cauſe of that conſtant Circuit: For the Illuſtration of which, he delivers many particulars concerning the collection of Salt in the *Uterus*, and its Fermentative power, and the Fecundity of *Ægyptian* Woemen by reaſon of their drinking the Nitrous water of the *Nile*, &c. To which he annexes an accompt, *Quare ab Uteri Fervore pleræque Animantes tantum ſeroſum quid & paucum, Mulieres verò ſanguinem profundant? Quare etiam illæ periodi in aliis Mulieribus ſint longiores, in aliis breviores? Ex quo fonte Menſtruæ purgationes ſupprimantur, vel perperam procedant? Quæ mulieres careant Menſtruis ſine noxa, & quàm vegetum robur, quantáq; vitæ longævitas inde conſequatur? Quænam immodicæ vacuationis Cauſæ?* &c.

In the *ſecond* Diſſertation concerning the *Conſent of many parts of the Body with the Womb*, he firſt declareth, that he underſtands by this *Conſent* nothing elſe, but that the parts are at once affected together from one part *principally* affected, and communicating that affection to others. Then having exploded the common opinions touching the Cauſes of this Sympathy, he offers his own, *viz.* the Vicinity of the parts, and the Community and ſtructure of the Veſſels, by which the vitiated liquors of the body being conveyed from one part to another, may there excite the ſame or different affections. But becauſe this way of Sympathiſing by veſſels hath many conſiderable and un-obvious varieties, he takes pains to examine them at large and to give a Scheme of the whole Oeconomy of the Body of the perfecter Animals, conſidering the diverſity and various uſes of the Veſſels, and the neceſſity of Motion and Senſe, depending from the Brain, the Animal Spirits, and the Syſtem of the Nerves, which, being diſperſed through the whole

Body,

Body, cannot but produce this Conſent of parts: For the clearer Explication of which, he gives an Accompt of the Order and Dependency of the Veſſels, by which the various Juyces are diſtributed through the Body; and from all theſe together, (taking in the *Structure* of the parts) he deduceth *firſt* in *General*, the manner, How any one part, being affected, communicateth its affection to others; and then in *Particular*, How the Scituation, and the Connexion of the *Womb*, with other parts, is ſubject to produce the like effects: Where he exſpatiateth to declare, How that from the depravation of the Uterine ferment and bloud, ſo many, ſo various, and ſo horrid Diſeaſes and Symptoms ariſe: To all which he adds the ſolution of theſe two Queſtions; 1. Why Sweet ſmells raiſe Hyſterique paſſions; and fœtid ones, remedy the ſame? 2. Why there is ſo ſpecial a conſent of the Womb with the Breaſts? Concerning both which we refer the Reader to the Author himſelf, and proceed to the

Third Diſſertation, in which he inquires, Whence it is, that *Milk* is the beſt Aliment of the Body? And to ſatisfie this Inquiry; he preſuppoſeth, that the proxime nouriſhment is to be as like as may be to the Body to be nouriſh't, and that we ſubſiſt by the ſame things, of which we are generated, and that the Fœtus is fed in the womb, not with Bloud, but a Milky Juyce, taken in at the Mouth, and ſever'd from the Bloud in the *Uterus* by the *Placenta*, as a Strainer; as 'tis in the *Breaſts* by the Glanduls and Tubes deſigned for the ſame purpoſe. And having concluded thereupon, that Meats do not nouriſh before they are converted into a Milky liquor; he Analyſeth Milk, and finding, that its fatty, terreſtrial, and ſerous parts may be eaſily mixed, ſeparated again, and made a fit matter for the different parts of the Body, the Serous part thereof (which is alſo Nitrous) being a very proper Vehicle to conveigh it thorough the veſſels; he infers, that it is the moſt convenient Food, not for Children only, but for Grown people alſo. But becauſe he was aware of divers Objections againſt this Doctrine, eſpecially thoſe two, that are taken from the double Principle of our Generation, the Bloud, and the Genital ſeed; and from the two ſorts of Parts of the Body, Spermatick and Sanguineous: He endeavors to remove both, as may be ſeen in the Book it ſelf; where do occur ſundry curious and conſiderable Anatomical Obſervations and Experiments, grounded upon the Learned Dr *Whartons* Book of *Glanduls*, and proving, that the

Maternal Bloud is neither the matter of the Aliment of the *Fœtus*, nor that, of which it is firſt formed: all which is illuſtrated and confirmed from the *Phænomena* in *Oviparous* Animals, whoſe young ones, bred in Eggs, receive no bloud at all from their Dams.

But as to the ſucceſſive Changes made in Meats, fit for Nutrition and the production of various Juyces; he repreſents them thus: After that the *Chyle*, produced out of meat and drink in the ſtomach, hath paſſed to the Heart, then the fineſt and moſt Spirituous parts thereof are changed into the red part of the Bloud; ſuch portions as are diſpoſed next, are turned into Bile, and other humors; the remainder is by iterated fermentations with the Bloud in the Heart further digeſted, and perfected, and by being in many places percolated, and leaving behind its ſeroſity, acquireth a glutinous and fibrous nature, like Milk, fitteſt for Nutrition.

So that he concludes upon the whole, That there being no part of the Body, which is not generated of the Seed, and conſequently the Seminal matter being the neareſt Aliment of the ſame, and nothing, of things outwardly taken in, having a greater cognation with it, than Milk, this Liquor is to be eſteem'd the beſt Aliment, and the propereſt to repair tabid and decayed Perſons.

II. *HISTORIÆ GENERALIS INSECTORUM*, Johannis Swammerdani, *Pars prima*. Ultrajecti *A.* 1669. in 4°.

THis Curious and Philoſophical Book, written in the *Belgick* Tongue, treateth chiefly of theſe three things.

Firſt, It lays down the Ground of all Natural *Changes* in Inſects; declaring, that by the word *Change*, is nothing elſe to be underſtood but a gradual and natural Evolution and Growth of the parts; not any Metamorphoſis or Transformation of them: which Growth is here made to reſemble, not only the Increaſe of other Animals, but alſo the Budding, Knitting and Spreading of Plants. And here the Author, having taken notice, that, whereas Antient and Famous Writers have eſteem'd and called the *Nympha*, among Inſects, the Change of that Worm, which carries the proper ſhape of the future little Animal; and the *Chryſalis* or *Aurelia* the Change of that Caterpillar, which ſhews no parts at all of the Animal to come; having, I ſay, noted this, deſires the Reader to obſerve, that, whereas he is able to diſcern and to ſhew all the parts or members of the future Animalcle, as well in the *Chryſalis*, as the *Nympha*, he makes no other difference amongſt them, but this, That ſince the

the parts in a *Chryſalis*, are not ſo plainly diſcernable to our view, as thoſe in a *Nympha*, and becauſe a *Chryſalis* does ſometimes appear of a Gilt-colour, which he hath not hitherto obſerv'd in a *Nympha*, he calls the *Nympha*, barely by the name of *Puppet*, and the *Chryſalis* by that of *Gilt-puppet:* the diſtinction of which is made very clear by the neat and accurate Cuts annexed, and their Explication. In this *Firſt part* is ſet forth the manner, how the *Worms* and *Caterpillars* turn into *Puppets*; and ſhewed, *that* ſome Inſects come perfect out of the Egg, and never out of a Puppet; *that* the principal difference of the *Worm-animalcula*, that turn into *Puppets*, conſiſts in this, that ſome have feet, ſome have none; *that* the breaſt of the feetleſs Worms is never changed; *that* the ſix fore-feet of the Worms with many or few feet are never changed or tranſpoſed; *that* the Wings, Horns, Feet, *&c.* grow up under the skin by degrees; *that* in all Worms he can eaſily ſhew the ſaid parts under the skin, affirming, to have done it actually in the preſence of Seignieur *Magalotti*, and Monſieur *Thevenot*, Two very Intelligent and Cautious perſons; and *that* even a *Frog* comes forth into a Puppet.

Secondly, This Book undertaketh to make it out, How the true Ground of the Natural *Changes*, or the Knowledge of the *Nympha* and *Aurelia* hath been obſcured and marred; ſhewing withal, how it is to be cleared and reſtored again. Where he affirms, that *Mouſet* and others do erre about the *Aurelia*, making it neither an Egg, nor an Animal; and that *Harvey* miſtaketh, calling the *Aurelia* (which indeed is the Animal it ſelf,) an Egg, and affirming, that Bloudleſſe *Animalcula* are produced out of *Aurelia*'s by Transformation; whereas the Change, happening in the *Puppets*, is nothing elſe but an Evaporation of the ſuperfluous moiſture. Further, that *Goedartus* erres, holding, that a *Caterpillar* may change before her time; and that, if ſhe ſo changes, ſhe then produceth another Animal: Contrary whereunto our Author affirms, that theſe *Animalcula*, which the ſaid *Goedartus* mentions, as changing againſt the order of nature, do *always* come forth in that manner, *viz.* The Male with wings, and the Female without them: Obſerving further, That *Caterpillars* early forbearing to eat, come only to turn into ſmaller bodied Animals; and adding, that they may change when they will, and that the Animals, when once changed, do never grow bigger. And from the knowledge of the propagation of theſe *Animalcula*, he is of opinion, that we may arrive to that of the Propagation of the reſt of Animals; where he declareth his ſentiment, that there is no *Generation* in Nature, but only a Production by the Growing of parts; adding this aſſertion, that he is able *both* to ſhew all the parts of a *Butterfly* in a Caterpillar, *and* to make the change of the Caterpillar to proceed leiſurely, and ſo to ſtop it in its change, that it ſhall appear half *Caterpillar*, and half *Aurelia*; which he ſaith, he hath actually performed before the now Great Duke of *Tuſcany*.

Thirdly, This Author reduceth all *Changes* of Inſects, (ſome few excepted, which he acknowledgeth he doth not yet well underſtand,) into *Four* Claſſes or Ranks; which are diſcriminated by *four* different ways of

Production

Production, Change and Growth. The *first* Rank, by him called *Nympha-Animal*, hath a little Animal fully formed in the Egg, which after the evaporation of the ſuperfluous moiſture, comes forth perfect and ſo groweth up; ſuch as the *Louſe* and *Flea*, &c. The *ſecond* called *Nympha-Vermiculus*, hath the parts of the Inſect imperfectly ſhaped in the Egg, and after hatching acquires its perfection *Viſibly* by outward food; ſuch as the *Locuſt* and *Cricket*, &c. The *third*, called *Nympha-Chryſalis* or *Aurelia*, obtains after hatching, its perfection *darkly*, and not till the laſt caſting of the skin; ſuch as the *Emmet*, and *Night-butterfly*: So that in the *ſecond* and *third* Claſſis not a perfect *Animal*, but a *Worm*, precedes the growing up of the parts; yet with this difference, that in the *ſecond*, the little Creature groweth up manifeſtly; which in the *third* is done obſcurely: The *fourth*, called *Nympha vermiformis*, remains always ſhut up in the skin of the Worm, without a poſſibility of diſcerning the parts, till caſting both skins at once, it becoms capable of generation; ſuch as the *Fly*.

In the Explication and Deduction of all which differences, the Author taketh notice of many remarkable particulars: *E.g. That* the Inſects, which come perfect out of their Eggs, change only by caſting their skin, and thoſe that come forth imperfect, do, beſides skin-caſting, grow up by food, to become *Nympha*'s or Puppets: *That* thoſe, which comeperfect or imperfect out of the Egg, are in the Egg firſt like Puppets, and undergo, both of them in the Egg, all the alterations, which any Inſect undergoeth in the Puppet: *That* the parts of *Puppets* protuberate, much like the Budding of Flowers: *That* the *Caterpillar* is the *Butterfly* it ſelf, only covered over with a mantle, whereby the parts are kept from our diſcerning: *That* the doctrine of Seigneur *Malpighi*, in his Diſſertation de *Bombyce* (dedicated to the *R. Society*,) concerning the Change of *Butterflyes*, is true: *That* innumerable Inſects fly about and feed by night, as well as others do by day: *That Snails* diſcharge their excrements by the neck, and are each of them, both Male and Female: *That* from *Caterpillars*, feeding on ſuch and ſuch plants, conjectures may be drawn concerning the agreement of the reſpective qualities of them; it being very probable, that, if thoſe Creatures do eat of ſeveral plants (each ſort of thoſe Inſects being eſteem'd, to feed but on one ſort of Vegetables) thoſe Plants do agree in their nature and vertues, *&c.*

Thoſe Inſects, which the Author can as yet reduce to no *Claſſis*, are;

Cicindela.	*Scarabæus pilularius.*
Scolopendra.	*Hydrocantharis.*
Julus.	*Hydrocantharis minimus.*
Curculio.	*Scorpio.*

III. *The* CREED *of M.* HOBBES, *Examined by M.* Teniſon. London, 1670. *in* 8°.

PAſſing by the ſeveral particulars, which concern *Morality* and *Policy*, diſcuſſed in this Book, as not belonging to theſe Tracts, which are principally

principally deſigned to give an Accompt of ſuch Occurrences as are of a Phyſical and Mathematical nature; We ſhall only take notice of the Ingenious Confutation, made by this Author, of what M. *Hobbes* hath delivered concerning the *Rational Soul*, and *Perception* in *Matter*; Where (in my opinion) it is ſtrongly evinced, That the *Soul of man* is ſomething elſe, than the Organized Body in due motion; and that 'tis altogether unconceivable and therefore moſt un-philoſophical, that *Matter* ſhould be capable of Perception, Cogitation, and Diſcourſe. In the doing of which, our Author deſcends to particulars, making it out, that *Senſation* is not made by Motion or Reaction in meer Matter; nor that Imagination, Memory, much leſs Reaſon, are meerly Mechanical; refuting alſo that Dogme, which maketh Reaſon nothing but an apt joyning of *Names*. All which ſeems to be performed with ſo much force, that it appeares not, what in reaſon can be rejoyned thereto; which yet is not ſaid without a ready ſubmiſſion to better judgments.

IV. *FRANCISCI JOSEPHI BURRHI Epiſtolæ duæ ad Thomam Bartholinum.* Hafniæ, 1669 in 4°.

THis ſmall Tract being but very lately ſent out of *Denmark* to the Publiſher, he thought fit to give forthwith the following Accompt of it.

Theſe two Letters of Signeur *Burrhi* are an Anſwer to two others, which M. *Bartholin* had written to him touching ſundry conſiderable and curious Subjects of Natural Philoſophy and Medicine.

In the *former* he endeavours to explain, How the *Brain* is formed, and what kind of Subſtance it is: In the doing of which he obſerveth, That as many Salts, diſſolved together in common water, are ſever'd by a ſimple Diſtillation; and as divers Mettals melted together into one maſſe are un-mixed from one another, when a certain degree of heat is given them; ſo the different parts, which conſtitute the *Seed*, although they be ſo blended together that 'tis impoſſible to diſtinguiſh them, do diſ-engage themſelves from one another when they are agitated by a competent Heat; and taking the ſituation which is natural to them, give riſe to the ſeveral Organs of the Body. The direct and the moſt maſſy, by their weight going to the Center, form the *Heart*; the ſpongious, the *Lungs*; the bituminous, the *Liver*, and the fatty and oily, as the higheſt, riſing above the reſt, form the *Brain*, &c. Where he takes notice, that *Hippocrates* holds the Brain to have little of Oylines in it, becauſe it will not flame; whereas he aſſures, that having diſtilled the Brain of a Calf, he drew from it a conſiderable quantity of Oyl: which (to note that by the by) being applyed outwardly, is by him recommended as excellent to appeaſe the pains of the *Gout*.

In the ſame Letter he affirms, that in the Brain there is made a certain very ſubtile and well-ſcented liquor, which he believes to be the Seat of the Reaſonable Soul; and that the Wit of men depends on the Temper of this Liquor, rather than from the Conformation of the Brain: Which he confirms by the Example of one, who by taking great ſtore of *Tobacco*,

had ſo dryed up his Brain, that after his death there was found in his Head but a very ſmall black clod, compoſed of ſundry membrans; and yet his Soul had not been wanting to perform her functions to the laſt.

He alſo takes occaſion to diſcourſe of *Reſpiration*, adventuring to affirm, that Reſpiration is cauſed by divers liquors, which riſing through the Veins into the Heart, and there fermenting, ſend to the Lungs ſuch Vapors as attract the Air: For illuſtration whereof, he ſaith, That, if to a Glaſs-bowl, hollow and with a ſmall hole, you ſodder divers Pipes of Glaſs half full of different ſtrong Liquors, the Vapours, elevated from thoſe Pipes in the glaſs-bowl, will draw the Air after the ſame manner as tis drawn into the Lungs by Reſpiration.

In the *other* Letter, he treats of the way of curing ſeveral Diſtempers of the Eyes, and particularly of ſome ſurprizing ones, cured by himſelf. Where he affirms, that, having cut aſunder the Apple of the Eye of divers Animals, and ſqueeſed out the humors even the *Chryſtallin* it ſelf, he hath reſtored the ſight to thoſe Animals; and that the Eyes of thoſe Birds, on which he had made this Experiment, looked better and more vivid than before; and that he had performed this operation upon many perſons with ſo much ſucceſs, that in their Eyes there remained not the leaſt appearance of a Scar. After this relation he is not ſhy to teach the way of making this Operation, adding the cautions to be obſerved therein, and withall the Remedy it ſelf; which conſiſts chiefly in a certain Water of *Celondine*, and a Phlegme of *Vitriol* of *Mars*.

On the occaſion of teaching the Preparation of this remedy, he taketh notice of ſeveral particulars, perhaps not to be deſpiſed: Firſt, That if about a pint of Water be poured on ten pounds of Filings of Iron, freſh and fine, and after having well ſtirr'd it with one's hand, you cover the veſſel, wherein it is, and wrap it about with ſome dry ſtuff, theſe Filings will, within the ſpace of an hour and an half, ferment and grow hot, like *Calx viva*. Secondly, That having often quenched in Water an Ingot of fine Gold, heated red hot, he hath found the weight of that Gold notably diminiſh't; and having afterwards ſuffered the Water to evaporate, drawn a little Gold thence; which (he ſaith) ſhews, that the moſt ſubtile parts of the Gold paſs into the liquors, wherein it is quenched; whence it is (he adds) that ſuch liquors have admirable vertues, to cure many Diſeaſes: And amongſt others he pretends, that in *Dyſſenteries* there is no better Remedy, than Roſe-water, wherein Gold hath been quenched. Thirdly, That in the Reſolution of *Simples*, an excellent means of preſerving their proper virtues is, inſtead of uſing Fire or any other ſtrange Heat, which might alter their vertues, to employ only the Warmth of an Hot-bed made of the Putrefaction of the Herbs of the ſame *Species* with thoſe you would Diſtil.

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